

No: 6/87

Ref: 1a

Aircraft type and registration: Lockheed L 1011-385-3 Tristar G-BLUS

No & Type of engines: 3 Rolls Royce RB211-524B4-02 turbine engines

Year of Manufacture: 1982

Date and time (UTC): 12 May 1986 at 0240 hrs

Location: V.C. Bird International Airport, Antigua

Type of flight: Airline Scheduled Passenger

Persons on board: Crew — 12 Passengers — 14

Injuries: Crew — None Passengers — None

Nature of damage: Superficial burning of right hand wing panels and No 3 engine cowlings and pylon

Commander's Licence: Airline Transport Pilot's Licence

Commander's Age: 42 years

Commander's Total Flying Experience: 9930 hours (of which 700 were on type)

Information Source: Aircraft Accident Report Form submitted by British Airways Air Safety Branch and additional AIB investigations.

The aircraft was parked on the apron and, before refuelling was started, the hose between the apron hydrant pit and the dispenser cart burst. Fuel sprayed over the tarmac, dispenser and the aircraft wing and was ignited when it reached the No 3 engine and tailpipe.

Some of the cabin crew saw the fuel spray and when the fire started they began to evacuate the passengers. The station engineer who was on the flight deck was told of the spillage and saw the fire start. He advised the flight crew to evacuate the aircraft while he returned to the apron where he used the apron fire extinguisher to put out the engine and wing fire. The refuelling crew chief assisted him with another portable extinguisher. They continued to spray the dispenser with extinguishant until the airport fire services arrived.

The airport fire service, which was quickly on the scene, extinguished the fire on the aircraft and fuel dispenser and the extensive tarmac fire within three minutes. All the passengers and crew evacuated the aircraft without injury in less than one minute using steps at the two forward left doors.

The dispenser cart was destroyed by the fire. The damage to the aircraft was limited to the starboard pylon and wing access panels, No 3 engine and cowlings. The damage to the pylon and wing panels was temporarily repaired and the No 3 engine and cowlings were changed before the aircraft was ferried to London for permanent repair.

The hose which burst was of 2½ inch bore and about 25 feet long, constructed from rayon reinforced rubber to BS 3158 of 1969, rated as having a working pressure of 175 psi and test

pressure of 300 psi. The ultimate pressure capability of this quality of hose should be about 1200 psi at the time of manufacture. At the time of failure the hose was 11 years old and a burst test which was conducted on a length of the failed hose indicated that it was generally capable of sustaining a pressure of about 700 psi.

It was not possible to establish for how long and under what conditions the hose had been stored, but the operating company records showed that the hose had been subjected to a pressure test to 175 psi one month before the failure.

Examination of the failed hose showed that it had suffered considerable charring during the fire and that elsewhere it appeared to be externally moderately heavily abraded, exposing the reinforcement braiding in some areas, with signs of cracking due to ozone attack and blistering in several places. It had burst at a point about 3 feet from the hydrant pit connection whilst working at the nominal hydrant pressure of 100 psi.

The appearance of the failure was generally consistent with that of a pure pressure burst with no evidence of any significant external damage in the area. It was observed that, in the area of the rupture, the rayon braid fibres had been teased out to an abnormal extent and that the hose liner had become detached from the reinforcing braid. There was a clear impression of the braiding on the outer surface of the hose liner showing that it had been correctly laid at manufacture. Although the reason for the separation of the liner from the braid and the disturbance of the braid lay could not be established positively, they would have constituted a point of weakness in the hose not readily visible to external inspection.

The Director of Civil Aviation, Antigua is conducting an Inquiry into this incident.